

# Total Support System for High Capacities with Fast Installation

- To 300-Kip Range per Support Pile
- To 100-Kip Range per Guy Anchor
- Range of 20 each per Crew Day

**R**ecent technological advances have brought Chance helical anchoring performance to all-time highs! The practical effects for utility applications are literally monumental: Transmission Towers and Substations requiring higher load capacities . . . with the added advantages of power-installed anchoring speed and convenience.

## New Breakthroughs:

- **HELICAL PULLDOWN™ Micropile**

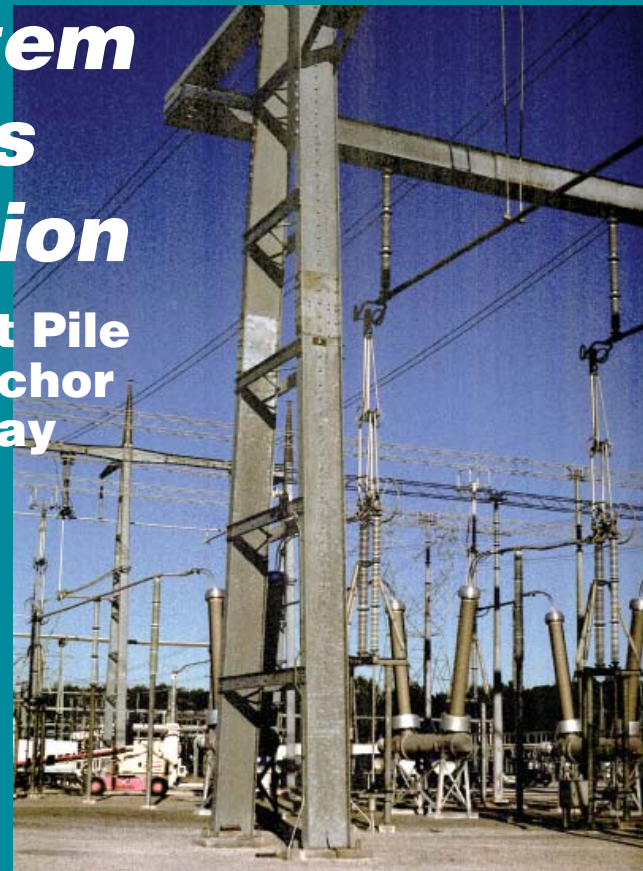
The most significant forward leap in compression-load capacity comes from the patented HELICAL PULLDOWN™ Micropile. Developed especially for poor-soil site conditions, this expanded innovation of proven Chance screw-anchoring products is helping utilities keep up with the pace of demand in difficult situations.

- **HeliCAP™ Engineering Software**

Another first is the anchor-application design capability of the new HELICAP™ Engineering Software. It lets an application professional see how various Chance screw anchors can be expected to work in a PC simulation of any particular job site.

- **Compatible System Components**

The “product family” of Hubbell Power Systems includes adapters and terminations for any foundation and/or anchor project. Let our application-engineering staff’s experience and knowledge help you put together this complete package for your project.



## **Report: TVA Substation goes on line over new deep foundation solution**

### HELICAL PULLDOWN™ Micropile masters site soils

As part of a cost analysis for the Tennessee Valley Authority’s new 500kV substation to be built near Memphis, TN, the structural consultant Mesa Engineering contacted Chance application engineers.

#### Problem Soil Conditions:

Soft silty clay ( $N < 5$ ) extended from the surface to a depth of 30 to 35 feet. This soft layer was underlain by very dense clayey gravel. A deep foundation of some type was required to transfer the loads from the

(Photos above) Tennessee Valley Authority’s new 500kV Substation structures near Memphis, TN, sit on 388 HELICAL PULLDOWN® Micropiles (HPM). Average production rate of 20 per day, installation ease and economies resulted in TVA decision to use HPM as their deep foundation solution.

substation structures, through the soft silty clay layer, to the very dense clayey gravel layer below.

Deep foundation options included driven concrete piles, cast-in-place concrete and Chance HELICAL PIER® Foundation Systems. The latter proved to be the most economical of these potential solutions.



### On-Site Testing:

An SS175 pile was selected for a test. Chance application engineers suggested the SS175 pile alone was not adequate for the required ultimate load of 100 kip in this particular soil. However, the client requested an SS175 be installed to 9,500 ft.-lb. and then tested. At a compression load of 60 kip, the anchor buckled in the soft silty clay layer.

Chance application engineers recommended the HELICAL PULLDOWN™ Micropile (HPM) to significantly increase resistance to buckling in soft soils at a typical cost of only 15 to 20 per cent more than the standard anchor. This HPM consisted of an SS175 lead with 8-, 10- and 12-inch helices, a single 14-inch helical extension and 35 feet of plain extension shafts for a total installed depth of 45 feet. The upper 33 feet of shaft were encased with a 5-inch diameter grout column.

A test pile of this HPM was installed within 8 feet of the first test pile (standard SS175). A compression load of 125 kip was applied to the HPM before the reaction anchors started to pull out.

### Solution Results:

Chance conducted a training seminar for the substation's general contractor, L.E. Myers, and certified that company as qualified to install the patented HELICAL PULLDOWN™ Micropile system.

A total of 388 HPM were installed with an average production rate of 20 micropiles being completed each day. This rate of production, ease of installation and comparative economy versus alternative methods reaffirmed TVA's decision to use the HELICAL PULLDOWN Micropile as their deep foundation solution.

# Technological breakthroughs impact transmission foundations, guy anchoring

## HELICAL PULLDOWN™ Micropile extends capacity

Based on more than 35 years of research, engineering, development and testing, Chance screw-type foundation systems have been perfected for their savings in transmission tower construction. That is, savings of labor, materials, equipment and time.

A major new breakthrough significantly extends capacity where surface soil conditions are poor. A composite end-bearing/frictionpile, the patented HELICAL PULLDOWN Micropile (HPM) combines power-installed screw anchor technology with an innovative use of an integral grout column. Connections to superstructures may be by steel-fabricated brackets or integration into rebar gridwork of concrete pile cap.

## High installation production rates

Whether using Chance standard screw-anchor foundations or HPM methods, tower foundations for lattice-steel, self-supporting structures usually install at the rate of two to three towers per crew day. Single-element foundations for guyed towers generally install at five or six per crew day, including guy anchor installation.

## The only anchor design software!

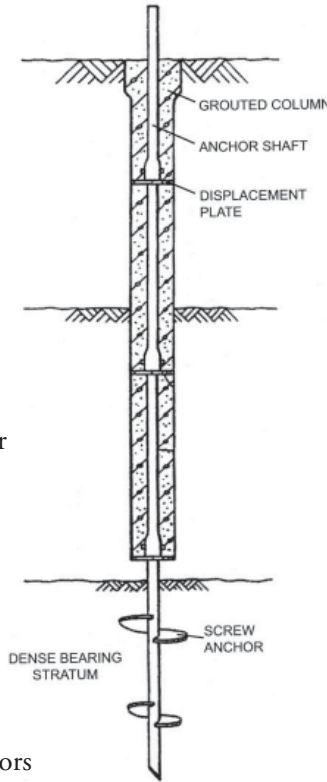
Truly revolutionary to specifying helical anchors for most any application is the recently introduced HeliCAP™ Engineering Software. This copyrighted design tool is exciting news for engineers who design compression and tension anchoring applications. Based on your project's criteria (soils and load requirements), it provides bearing capacities of various anchor configurations.

Available on CD, it the only interactive software of its kind, works in a PC Windows environment and can be previewed in a free demonstration on our web site at [www.hubbellpowersystems.com](http://www.hubbellpowersystems.com).

This is the same process Chance anchor-applications engineers employ daily to analyze problems and help project engineers find solutions. You are welcome to consult them for assistance in solving your foundation and guying project challenges.

## Guy connection selections complete the package

Choose guy deadends in either the compression-type by Fargo or the formed-wire Adjust-A-Grip type from Chance. Available in high ratings for transmission loads, both may be applied at the structure end or the anchor end of the guy. Let our total transmission anchoring package complete your work from structure staging area to installation location. ■



**Total Transmission Support: Job-specific teams Chance helical foundation and guy anchors plus top and bottom guy deadends in Chance Adjust-A-Grip® and Fargo brands.**





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**ANDERSON™ CHANCE® FARGO® HUBBELL® OHIO/BRASS®**

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